

## **ISS and Human Research Project Office Highlights November 27, 2009**

### **ISS Research Program**

#### **Materials International Space Station Experiment 7 (MISSE 7) Science Experiments Launched on STS-129.**

Materials International Space Station Experiment 7 was launched on the STS-129 mission November 16, 2009. The mission profile calls for the following: On November 21<sup>st</sup>, Express Logistics Carrier 2 (ELC 2) will be attached to the International Space Station (ISS). On Monday, November 23<sup>rd</sup>, the MISSE 7 Passive Experiment Containers (PECs) will be deployed by extravehicular activity (EVA), and the PECs will be opened to the space environment, followed by complete activation of the MISSE 7 power and communications functions. Among the many MISSE 7 participants, GRC has a number of experiments on MISSE 7A and 7B, including 2 active experiments and 8 passive experiments (10 experiments total), with a total of 155 samples.

The GRC science experiments on MISSE 7 are designed to examine the effects of the space environment on spacecraft materials and components, and to characterize the fluence and directionality of the atomic oxygen encountered by MISSE 7. This work is supported by the ISS Research Project. (POC: RES/Donald A. Jaworske, (216) 433-2312, RES/Kim K. de Groh, (216) 433-2297)

#### **MISSE 6 De-integration with Hathaway Brown Students.**

On November 13, 2009 the NASA Glenn Material International Space Station Experiment 6 (MISSE 6) Stressed PEACE Polymers Experiment was de-integrated from the experiment mount plates after retrieval from 1.45 years in low Earth orbit on the International Space Station. The experiment was developed and assembled in collaboration with students at Hathaway Brown School. The objective of the experiment is to compare the atomic oxygen erosion yield of stressed and non-stressed polymers to determine if the atomic oxygen erosion rate is dependent upon stress while in low Earth orbit. Six Hathaway Brown Students and their Director of Research, Patricia Hunt, participated in the disassembly and photo documentation. Also in attendance was Channel 5 News who televised interviews with the students and the Principal Investigator, Kim de Groh on the 5 pm Live on Five News. The news story is entitled: "Local Teens Work with NASA On Space Station Experiments" and it is available to watch through the following link: [www.newsnet5.com/video/21610251/index.html?taf=nn5](http://www.newsnet5.com/video/21610251/index.html?taf=nn5). Several of the students have had the unique opportunity to have been an integral part of both the build up and post flight examination of the experiment. This work is supported by the ISS Research Project. (POC: RES/Kim K. deGroh, (216) 433-2297, RES/Alphaport/Bruce A. Banks, (216) 433-2308).

#### **MISSE 7 installed on Logistics Carrier 2 on ISS by Spacewalker Randy Bresnik.**

Spacewalker Randy Bresnik completed installation of the MISSE 7 experiment on Express Logistics Carrier 2. This is the latest in a series of experiments that expose materials and composite samples to space for several months before they are returned for experts to analyze. This could lead to stronger spacecraft materials and applications on Earth. This MISSE experiment actually is plugged into the space station's power supply.

Meanwhile Robert L. Satcher is preparing the Quest airlock for the installation of the high pressure gas tank, which is being flown to Quest by the station robotic arm. (POC: RES/Kim De Groh, (216) 433-2297)

### **Human Research Program**

#### **IVGEN hardware turnover to KSC completed.**

The Intravenous Water Generation (IVGEN) experiment completed hardware turnover at Kennedy Space Center (KSC) for integration into the MPLM on ISS assembly flight 19A, scheduled for March, 2010. (POC: MAH/DeVon Griffin, (216) 433-8109)

#### **Experts provide review comments on risk assessment of renal stone formation during exploration missions.**

A panel of subject matter experts provided their review comments for a proposed Glenn Research Center (GRC) computational simulation quantifying probabilistic risk assessment of renal stone formation during exploration missions. The review was positive and the Exploration Medical Capabilities project at GRC is in process of responding to comments in preparation to begin work. (POC: MAH/DeVon Griffin, (216) 433-8109)